DATA SUMMARY FORM: VOLATILES 1
SOIL GAS SAMPLES
parts per billion by volume (ppbv)

Site Name: IndustriPlex

Sampling Date: June 12, 2004

SDG #100862

Trillium Project No. 04864

	Sample Number	SG-Teradyne		SG-Teradyne-DUP		TRIP BLANK									
	Lab ID	576334		576335		576336									
	Dilution Factor	1.0		1.0		1.0									
RL															
0.50	1,4-Dichlorobenzene														
0.50	1,2-Dichlorobenzene														
0.50	1,2,4-Trichlorobenzene														
0.50	Hexachlorobutadiene														
0.50	1,3,5-Trimethylbenzene														
0.50	1,2,4-Trimethylbenzene	0.67		0.70											
0.50	1,2-Dichlorotetrafluoroethane														
0.50	1,2-Dibromoethane														
0.50	1,3-Butadiene														
0.50	Carbon disulfide	2.0	J	0.98											
5.0	Acetone	34	J	32											
5.0	Isopropyl alcohol	29	J	32											
0.50	Methyl tert-butyl ether														
0.50	Cyclohexane	1.7	J	1.7											
0.50	Dibromochloromethane														
0.50	Methyl ethyl ketone	2.0	J	2.0											
0.50	Methyl isobutyl ketone														
0.50	Methyl butyl ketone														
0.50	Bromodichloromethane														
0.50	trans-1,2-Dichloroethene														
0.50	4-Ethyltoluene	0.52		0.52											
0.50	2-Chlorotoluene		UJ		UJ		UJ								
0.50	n-Hexane	1.8	J	1.9											
5.0	Tetrahydrofuran														
0.50	n-Heptane	7.5	J	8.4											

\Industriplex\soil gas\100862 voc

TRILLIUM INC.

ATTACHMENT B

VOLATILE ORGANICS ANALYSIS DATA SHEETS (FORM Is)
SDG #100862
Volatiles in Soil Gas - IndustriPlex
Samples Collected June 12, 2004

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

ROUX2 SAMPLE NO.

SGTERADYNE
SG-TERADYNE

Lab Name: STL BURLINGTON Contract: 24000

Lab Code: STLVT Case No.: 24000 SAS No.: SDG No.: 100862

Matrix: (soil/water) AIR Lab Sample ID: 576334

Sample wt/vol: 200.0 (g/mL) ML Lab File ID: 576334

Level: (low/med) LOW Date Received: 06/19/04

% Moisture: not dec. _____ Date Analyzed: 07/02/04

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
75-71-8	Dichlorodifluoromethane	0.59	J
74-87-3	Chloromethane	0.58	J
75-01-4	Vinyl Chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.58	J
75-69-4	Trichlorofluoromethane	7.9	J
76-13-1	Freon TF	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
75-09-2	Methylene Chloride	0.50	UJ
75-34-3	1,1-Dichloroethane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
56-23-5	Carbon Tetrachloride	0.50	U
71-43-2	Benzene	0.91	J
107-06-2	1,2-Dichloroethane	0.50	U
79-01-6	Trichloroethene	5.1	J
78-87-5	1,2-Dichloropropane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-88-3	Toluene	7.1	
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	1.3	
1330-20-7	Xylene (m,p)	4.7	
100-42-5	Styrene	1.8	
95-47-6	Xylene (o)	1.4	
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U

7/13/04 M Erickson

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

ROUX2 SAMPLE NO.

SGTERADYNE
SG-TERADYNE

Lab Name: STL BURLINGTON Contract: 24000

Lab Code: STLVT Case No.: 24000 SAS No.: SDG No.: 100862

Matrix: (soil/water) AIR Lab Sample ID: 576334

Sample wt/vol: 200.0 (g/mL) ML Lab File ID: 576334

Level: (low/med) LOW Date Received: 06/19/04

% Moisture: not dec. _____ Date Analyzed: 07/02/04

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
87-68-3	Hexachlorobutadiene	0.50	U
108-67-8	1,3,5-Trimethylbenzene	0.50	U
95-63-6	1,2,4-Trimethylbenzene	0.67	
76-14-2	1,2-Dichlorotetrafluoroethan	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
106-99-0	1,3-Butadiene	0.50	U
75-15-0	Carbon Disulfide	2.0	J
67-64-1	Acetone	34	J
67-63-0	Isopropyl Alcohol	29	J
1634-04-4	Methyl tert-Butyl Ether	0.50	U
110-82-7	Cyclohexane	1.7	J
124-48-1	Dibromochloromethane	0.50	U
78-93-3	Methyl Ethyl Ketone	2.0	J
108-10-1	Methyl Isobutyl Ketone	0.50	U
591-78-6	Methyl Butyl Ketone	0.50	U
75-27-4	Bromodichloromethane	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
622-96-8	4-Ethyltoluene	0.52	
95-49-8	2-Chlorotoluene	0.50	~~U~~ UJ
110-54-3	n-Hexane	1.8	J
109-99-9	Tetrahydrofuran	5.0	U
142-82-5	n-Heptane	7.5	

7/13/04 CAGirkson

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

ROUX2 SAMPLE NO.

SGTERADYNEDL
SG-TERADYNEDL

Lab Name: STL BURLINGTON Contract: 24000

Lab Code: STLVT Case No.: 24000 SAS No.: SDG No.: 100862

Matrix: (soil/water) AIR Lab Sample ID: 576334D1

Sample wt/vol: 200.0 (g/mL) ML Lab File ID: 576334D

Level: (low/med) LOW * DO NOT USE* Date Received: 06/19/04

% Moisture: not dec. _____ CAE 7/13/04 Date Analyzed: 07/02/04

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 2.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
75-71-8	Dichlorodifluoromethane	1.0	U
74-87-3	Chloromethane	1.0	U
75-01-4	Vinyl Chloride	1.0	U
74-83-9	Bromomethane	1.0	U
75-00-3	Chloroethane	1.0	U
75-69-4	Trichlorofluoromethane	8.5	~~D~~ J
76-13-1	Freon TF	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
75-09-2	Methylene Chloride	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
67-66-3	Chloroform	1.0	U
71-55-6	1,1,1-Trichloroethane	1.0	U
56-23-5	Carbon Tetrachloride	1.0	U
71-43-2	Benzene	1.1	~~D~~
107-06-2	1,2-Dichloroethane	1.0	U
79-01-6	Trichloroethene	5.3	~~D~~
78-87-5	1,2-Dichloropropane	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
108-88-3	Toluene	7.3	~~D~~
10061-02-6	trans-1,3-Dichloropropene	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-90-7	Chlorobenzene	1.0	U
100-41-4	Ethylbenzene	1.4	~~D~~
1330-20-7	Xylene (m,p)	4.9	~~D~~
100-42-5	Styrene	1.8	~~D~~
95-47-6	Xylene (o)	1.5	~~D~~
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
541-73-1	1,3-Dichlorobenzene	1.0	U
106-46-7	1,4-Dichlorobenzene	1.0	U
95-50-1	1,2-Dichlorobenzene	1.0	U
120-82-1	1,2,4-Trichlorobenzene	1.0	U

7/13/04 CAE Jackson

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

ROUX2 SAMPLE NO.

SGTERADYNEDL
SG-TERADYNEDL

Lab Name: STL BURLINGTON Contract: 24000

Lab Code: STLVT Case No.: 24000 SAS No.: SDG No.: 100862

Matrix: (soil/water) AIR Lab Sample ID: 576334D1

Sample wt/vol: 200.0 (g/mL) ML Lab File ID: 576334D

Level: (low/med) LOW *DO NOT USE* Date Received: 06/19/04

% Moisture: not dec. _____ Date Analyzed: 07/02/04

GC Column: RTX-624 ID: 0.32 (mm) CAE 7/13/04 Dilution Factor: 2.0

Soil Extract Volume: _____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
87-68-3	Hexachlorobutadiene	1.0	U
108-67-8	1,3,5-Trimethylbenzene	1.0	U
95-63-6	1,2,4-Trimethylbenzene	1.0	U
76-14-2	1,2-Dichlorotetrafluoroethan	1.0	U
106-93-4	1,2-Dibromoethane	1.0	U
106-99-0	1,3-Butadiene	1.0	U
75-15-0	Carbon Disulfide	2.2	~~D~~ J
67-64-1	Acetone	39	~~D~~ J
67-63-0	Isopropyl Alcohol	33	~~D~~ J
1634-04-4	Methyl tert-Butyl Ether	1.0	U
110-82-7	Cyclohexane	1.8	~~D~~
124-48-1	Dibromochloromethane	1.0	U
78-93-3	Methyl Ethyl Ketone	2.0	~~D~~ J
108-10-1	Methyl Isobutyl Ketone	1.1	~~D~~
591-78-6	Methyl Butyl Ketone	2.4	~~D~~
75-27-4	Bromodichloromethane	1.0	U
156-60-5	trans-1,2-Dichloroethene	1.0	U
622-96-8	4-Ethyltoluene	1.0	U
95-49-8	2-Chlorotoluene	1.0	~~U~~ UJ
110-54-3	n-Hexane	1.4	~~D~~ J
109-99-9	Tetrahydrofuran	10	U
142-82-5	n-Heptane	8.2	~~D~~

CAE 7/13/04

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

ROUX2 SAMPLE NO.

SGTERADYNEDP
SG-TERADYNE-DUP

Lab Name: STL BURLINGTON Contract: 24000

Lab Code: STLVT Case No.: 24000 SAS No.: SDG No.: 100862

Matrix: (soil/water) AIR Lab Sample ID: 576335

Sample wt/vol: 200.0 (g/mL) ML Lab File ID: 576335I2

Level: (low/med) LOW Date Received: 06/19/04

% Moisture: not dec. _____ Date Analyzed: 07/02/04

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
75-71-8	Dichlorodifluoromethane	0.62	
74-87-3	Chloromethane	0.69	
75-01-4	Vinyl Chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.61	
75-69-4	Trichlorofluoromethane	8.6	
76-13-1	Freon TF	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
75-09-2	Methylene Chloride	0.51	J
75-34-3	1,1-Dichloroethane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
56-23-5	Carbon Tetrachloride	0.50	U
71-43-2	Benzene	0.73	
107-06-2	1,2-Dichloroethane	0.50	U
79-01-6	Trichloroethene	4.1	
78-87-5	1,2-Dichloropropane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-88-3	Toluene	6.5	
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	1.1	
1330-20-7	Xylene (m,p)	4.5	
100-42-5	Styrene	1.4	
95-47-6	Xylene (o)	1.4	
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U

CAE 7/13/04

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

ROUX2 SAMPLE NO.

SGTERADYNEDP
SG-TERADYNE-DUP

Lab Name: STL BURLINGTON Contract: 24000

Lab Code: STLVT Case No.: 24000 SAS No.: SDG No.: 100862

Matrix: (soil/water) AIR Lab Sample ID: 576335

Sample wt/vol: 200.0 (g/mL) ML Lab File ID: 576335I2

Level: (low/med) LOW Date Received: 06/19/04

% Moisture: not dec. _____ Date Analyzed: 07/02/04

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
87-68-3	Hexachlorobutadiene	0.50	U
108-67-8	1,3,5-Trimethylbenzene	0.50	U
95-63-6	1,2,4-Trimethylbenzene	0.70	
76-14-2	1,2-Dichlorotetrafluoroethan	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
106-99-0	1,3-Butadiene	0.50	U
75-15-0	Carbon Disulfide	0.98	
67-64-1	Acetone	32	
67-63-0	Isopropyl Alcohol	32	
1634-04-4	Methyl tert-Butyl Ether	0.50	U
110-82-7	Cyclohexane	1.7	
124-48-1	Dibromochloromethane	0.50	U
78-93-3	Methyl Ethyl Ketone	2.0	
108-10-1	Methyl Isobutyl Ketone	0.50	U
591-78-6	Methyl Butyl Ketone	0.50	U
75-27-4	Bromodichloromethane	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
622-96-8	4-Ethyltoluene	0.52	
95-49-8	2-Chlorotoluene	0.50	~~U~~ UJ
110-54-3	n-Hexane	1.9	
109-99-9	Tetrahydrofuran	5.0	U
142-82-5	n-Heptane	8.4	

CAE 7/13/04

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

ROUX2 SAMPLE NO.

TRIP BLANK

Lab Name: STL BURLINGTON Contract: 24000

Lab Code: STLVT Case No.: 24000 SAS No.: SDG No.: 100862

Matrix: (soil/water) AIR Lab Sample ID: 576336

Sample wt/vol: 200.0 (g/mL) ML Lab File ID: 576336

Level: (low/med) LOW Date Received: 06/19/04

% Moisture: not dec. _____ Date Analyzed: 07/02/04

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl Chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
76-13-1	Freon TF	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
75-09-2	Methylene Chloride	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
56-23-5	Carbon Tetrachloride	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U
79-01-6	Trichloroethene	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-88-3	Toluene	0.50	U
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
1330-20-7	Xylene (m,p)	0.50	U
100-42-5	Styrene	0.50	U
95-47-6	Xylene (o)	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

ROUX2 SAMPLE NO.

TRIP BLANK

Lab Name: STL BURLINGTON Contract: 24000

Lab Code: STLVT Case No.: 24000 SAS No.: SDG No.: 100862

Matrix: (soil/water) AIR Lab Sample ID: 576336

Sample wt/vol: 200.0 (g/mL) ML Lab File ID: 576336

Level: (low/med) LOW Date Received: 06/19/04

% Moisture: not dec. _____ Date Analyzed: 07/02/04

GC Column: RTX-624 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) PPBV	Q
87-68-3	Hexachlorobutadiene	0.50	U
108-67-8	1,3,5-Trimethylbenzene	0.50	U
95-63-6	1,2,4-Trimethylbenzene	0.50	U
76-14-2	1,2-Dichlorotetrafluoroethan	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
106-99-0	1,3-Butadiene	0.50	U
75-15-0	Carbon Disulfide	0.50	U
67-64-1	Acetone	5.0	U
67-63-0	Isopropyl Alcohol	5.0	U
1634-04-4	Methyl tert-Butyl Ether	0.50	U
110-82-7	Cyclohexane	0.50	U
124-48-1	Dibromochloromethane	0.50	U
78-93-3	Methyl Ethyl Ketone	0.50	U
108-10-1	Methyl Isobutyl Ketone	0.50	U
591-78-6	Methyl Butyl Ketone	0.50	U
75-27-4	Bromodichloromethane	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
622-96-8	4-Ethyltoluene	0.50	U
95-49-8	2-Chlorotoluene	0.50	~~U~~ UJ
110-54-3	n-Hexane	0.50	U
109-99-9	Tetrahydrofuran	5.0	U
142-82-5	n-Heptane	0.50	U

CAE 7/13/04

TRILLIUM INC.

DATA VALIDATION

FOR

INDUSTRIPLEX PROJECT
WOBURN, MASSACHUSETTS

ORGANIC ANALYSIS DATA
Volatile Organics in a Solid Sample
Sample Delivery Group #100862
Sample Collected June 2004

Chemical Analyses Performed by:
Severn Trent Laboratories
Colchester, Vermont

For:

Roux Associates, Inc.
Burlington, Massachusetts

By:

Trillium, Inc.
356 Farragut Crossing Drive
Knoxville, Tennessee 37922
(865) 966-8880

July 13, 2004

04864\CAE\EKD
Industriplex/Soil Gas/100862 clay

EXECUTIVE SUMMARY

Validation of the volatile organics analysis data prepared by Severn Trent Laboratories (STL Burlington) for one solid sample collected in association with the IndustriPlex project in Woburn, Massachusetts, has been completed by Trillium, Inc. The data were reported by the laboratory in a single data package under Sample Delivery Group (SDG) #100862, which was received for review on July 8, 2004, with corrected documentation provided on July 13, 2004. The following sample was reported:

Modeling Clay

Based on the validation effort, reported sample results were qualified as follows:

- The result for acetone in Modeling Clay was qualified as estimated (UJ).
- The result for naphthalene in Modeling Clay was qualified as less than the sample-specific reporting limit (15 U).

Brief explanations of the reasons for the actions taken above may be found in the Overall Assessment (Section XIII). Details of the validation findings and conclusions based on review of the results for each quality control requirement are provided in the remaining sections of this report.

Documentation issues are discussed in Section XII.

This validation report should be considered part of the data package for all future distributions of the volatile organics data.

INTRODUCTION

Analyses were performed according to EPA Method 8260B (SW-846, Test Methods for Evaluating Solid Waste, Third Edition, through Update III, 12/96). Various qualifiers were used by the laboratory to denote specific information regarding the sample results.

To the extent possible, Trillium's validation was performed in conformance with the "Region I, EPA-New England Data Validation Functional Guidelines for Evaluating Environmental Analysis," 12/96. Where discrepancies were observed between the criteria presented in the validation guidelines and the method specifications, the method specifications took precedence. Professional judgment was applied as necessary and appropriate.

The data validation process is intended to evaluate data on a technical basis rather than a contract compliance basis. This requires that the data package contain sufficient raw data documentation to facilitate the validation effort and allow verification of the reported results. It is assumed that the data package represents the best efforts of the laboratory and has already been subjected to adequate and sufficient quality review prior to submission for validation.

During the validation process, laboratory data are verified against all available supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data validator. Validated results are, therefore, either qualified or unqualified. Unqualified results mean that the reported values may be used without reservation. Final validated results are annotated with the following codes as defined by Region I:

U - The material was analyzed for, but was not detected. The associated numerical value is the sample quantitation limit.

J - The associated numerical value is an estimated quantity.

UJ - The material was analyzed for, but was not detected. The sample quantitation limit is an estimated quantity.

R - The data are unusable (compound may or may not be present). Resampling and reanalysis is necessary for verification.

These codes are recorded on the data summary form contained in Attachment A as well as on the laboratory's Volatile Organics Analysis Data Sheet (Form I) in Attachment B of this validation report to indicate qualifications placed on the data as a result of the validation effort.

Two facts should be noted by all data users. First, **the "R" qualifier means that the laboratory-reported value is unusable.** In other words, due to significant quality control problems,

the analysis is invalid and provides no information as to whether the analyte is present or not. Rejected values should not appear on data tables because they cannot be relied upon, even as a last resort. Second, **no analyte concentration is guaranteed to be accurate even if all associated quality control is acceptable.** Strict quality control conformance serves only to increase confidence in reported results; any analytical result will always contain some error.

The data user is also cautioned that the validation effort is based on the raw data printouts as provided by the laboratory. Software manipulation cannot be routinely detected during validation; unless otherwise stated in the report, these kinds of issues are outside the scope of this review.

I. Holding Times, Preservation, and Sample Integrity

The solid sample was collected on 6/18/04 and was analyzed on 6/21/04. This is well within the established holding time (14 days from collection) for solid samples.

No preservation information was recorded on the applicable chain of custody record by the sampler or the laboratory, but an acceptable (4°C ±2°C) cooler temperature of 2°C was recorded on the laboratory's Log-In Sheet. Laboratory notations on the Log-In Sheet also indicated that the sample was received intact, on ice, and in a sealed cooler.

II. GC/MS Instrument Performance Check

Two instrument performance checks using bromofluorobenzene (BFB) were run, representing both shifts (12-hour periods) during which samples, associated quality control (QC) samples, or associated standards were analyzed. Results for both instrument performance checks were acceptable.

III. Calibration

All reported sample analyses were performed on a single gas chromatograph/mass spectrometer (GC/MS) system identified as "N." No evidence that any internal standard or surrogate peaks were manually integrated was found in the data package. One or more target analyte peaks were manually integrated in some of the calibration standards and sample and QC analyses reported in this data set. Documentation of these manual integrations was provided in the data package, and verified that the integrations were correctly performed and accurately transcribed into the applicable quantitation reports.

A. Initial Calibration (IC)

One five-point IC associated with the reported samples was analyzed on 5/18/04. A calibration range of 5 µg/kg (ppb) to 200 ppb was established for all target analytes except propionitrile, which was calibrated from 20 ppb to 800 ppb; tetrahydrofuran, which was calibrated from 50 ppb to 2000 ppb; and isobutyl alcohol and 1,4-dioxane, which were each calibrated from 250 ppb to 10000 ppb. Relative response factors (RRFs) as well as percent relative standard deviation (%RSD) values were correctly calculated and accurately reported for this IC.

All reported average RRF values were greater than the minimum acceptance limit of 0.05 with the exceptions of acrolein (0.026), 2-butanone (0.027), propionitrile (0.021), isobutyl alcohol (0.012), and 1,4-dioxane (0.003).

Responses for all five of the analytes listed above showed acceptable consistency over the calibration range in the IC (6.4 %RSD to 11.5 %RSD), and the area responses were substantial (7512 counts to 143,620 counts) in the low concentration IC standard. These areas are similar to or greater than the low concentration responses for other poor performers (i.e., acrylonitrile, 16,335 counts, 2-chloroethyl vinyl ether, 14,247 counts, and acetone, 20,983 counts) for which acceptable RRFs were obtained. The low average RRFs can be partially attributed to the high area responses for the associated internal standard peak (≥2,500,000 counts in each IC standard). For propionitrile, isobutyl alcohol, and 1,4-dioxane, the higher concentrations analyzed in each IC standard also contributed to the low calculated average RRFs.

2-Butanone was reported in the sample in this data set (14 µg/kg), indicating that detection of this analyte is not a problem. In addition, recoveries of all five analytes with low average RRFs were acceptable in the laboratory control sample analyses (see Section VI.B). Therefore, although the validation guidelines recommend rejection of non-detected sample results for analytes with RRFs below 0.05 in the associated IC, based on all of the available quality control data and professional judgment, no sample results were qualified based on the low average RRFs in the IC.

All %RSD values were below the method-specified maximum acceptance criterion of 15%, with the exception of acetone (28.4%RSD). The result for acetone in Modeling Clay was qualified as estimated (UJ) based on the high %RSD value in the associated IC.

B. Continuing Calibration (CC)

The reported sample analysis was run in association with a CC standard analyzed on 6/21/04 at 21:37. Documentation of this CC standard was present in the data package, and RRF as well as percent difference (%D) values comparing the CC RRFs to the average RRFs from the IC were correctly calculated and accurately reported for all target analytes.

RRFs for all target analytes were acceptable (QC >0.05) in the CC standard with the exceptions of acrolein (0.020), acetone (0.046), 2-butanone (0.024), propionitrile (0.022), isobutyl alcohol (0.011), and 1,4-dioxane (0.003). Very good area counts were obtained for acrolein (59,084 counts), 2-butanone (72,648 counts), propionitrile (257,096 counts), isobutyl alcohol (1,696,135 counts), and 1,4-dioxane (486,297 counts) in the CC standard. For the reasons discussed in Section III.A, no sample results for these five analytes were qualified based on the low RRFs.

A very good area response was also obtained for acetone (136,220 counts) in the CC standard. This is comparable to the area obtained for acetone in the 50 ppb IC standard (133,388 counts), and the RRF in the CC is only slightly below the minimum acceptance limit. Based on professional judgment, no action was taken based on the low RRF for acetone in the CC standard.

IV. Blanks

One solid-matrix method blank (VBLKW8) was analyzed in association with the sample this data set. Naphthalene was detected at a low concentration (1.2 µg/kg) in this method blank. The result for naphthalene in Modeling Clay was qualified as less than the sample-specific reporting limit (RL) (15 U) because it is less than five times the concentration found in the associated method blank. No other target analytes were detected in the method blank.

No field-submitted blanks were submitted for analysis with the solid sample in this data set.

V. Surrogate Recovery

Recoveries for the three surrogate compounds were correctly calculated, accurately reported, and within the acceptance limits documented on the summary forms for all reported analyses in this data package.

VI. Spiked Analyses

A. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

No MS/MSD results were included in the data package.

B. Laboratory Control Sample (LCS)

One laboratory control sample pair (NXX1 LCS/LCSD) was prepared and analyzed in association with the solid sample in this data set. The LCS/LCSD pair was spiked at 50 µg/kg for all target analytes except propionitrile (200 µg/kg), tetrahydrofuran (500 µg/kg), and isobutyl alcohol and 1,4-dioxane (2500 µg/kg). All target analyte recoveries were within the analyte-specific acceptance limits documented by the laboratory on the summary forms in the data package except for chloroethane (120%; QC 72-118%) in the LCS and tetrachloroethene (112%; QC 71-107%) in the LCSD.

Since neither of these analytes was detected in Modeling Clay and both recoveries are too high, suggesting the potential for reporting false positives or for positive results that are biased high, no action was taken by the validator based on the LCS/LCSD results.

VII. Duplicates

A. Laboratory Duplicate

Unspiked laboratory duplicate analysis was not performed on the solid sample in this data set.

B. Field Duplicate

No field duplicate was submitted with this data set.

VIII. Internal Standard Performance

All internal standard areas and retention times (RTs) were within the quality control limits specified by the National Functional Guidelines (area ±50% of the corresponding CC standard area and RT ±0.30 seconds of the corresponding CC standard RT) and documented on the summary forms for all reported analyses in this data set.

IX. Target Compound Identification

All reported target analytes were correctly identified with acceptable supporting mass spectra present in the data package.

X. Compound Quantitation and Reported Quantitation Limits

Target compound concentrations and sample-specific RLs were correctly calculated and accurately reported for the solid sample in this data set, including appropriate adjustments for actual sample weight analyzed and percent moisture.

Documentation of the percent moisture measurement in the solid sample was included in the data package. The reported percent moisture for Modeling Clay was correctly calculated and accurately reported.

Laboratory-reported RLs are equal to the lowest IC standard concentration associated with these sample analyses. These values are well supported by the documented raw data.

The data summary form in Attachment A lists all individual sample analytes. All *positive* results are presented on this form, whether or not the value or qualifier was changed as a result of the validation. Where no result is listed, the analyte was not detected and the RL was not qualified. Sample-specific RLs may be found on the sample Form I (Attachment B), or may be calculated from the information on the data summary form as follows: unadjusted RL (far left column) multiplied by the dilution factor and divided by ([100 minus percent moisture] divided by 100).

XI. System Performance

The analytical system appears to have been working satisfactorily at the time of these analyses, based on evaluation of the available raw data.

XII. Documentation

A COC record documenting the sample in this data set was included in the data package and was accurately completed except that no preservation information was recorded by the sampler at the time of collection or by the laboratory on receipt of the sample.

Raw data supporting the BFB analysis performed on 5/18/04 at 16:35, as documented on the summary form, were not included in the data package. Instead, raw data for a BFB analysis run on 5/18/04 at 16:23, in which all acceptance criteria were not met, were included. At the validator's request on 7/12/04, the laboratory provided the missing raw data via email on 7/13/04. These pages were inserted into the data package as pages 94 to 96, replacing the incorrectly reported pages.

These documentation issues do not directly affect the validity of the analytical data generated. However, some of them could be problematic if the data were to be used for litigation.

XIII. Overall Assessment

Based on the validation effort, results for the sample reported in SDG#100862 were qualified as follows:

- The result for acetone in Modeling Clay was qualified as estimated (UJ) based on an unacceptably high %RSD value in the associated initial calibration.
- The result for naphthalene in Modeling Clay was qualified as less than the sample-specific RL (15 U) based on contamination in the associated method blank

Documentation issues are discussed in Section XII.

This validation report should be considered part of the data package for all future distributions of the volatile organics data.

TRILLIUM INC.

ATTACHMENT A

DATA SUMMARY FORM

SDG#100862
Volatiles in a Solid Sample - IndustriPlex
Sample Collected June 18, 2004

DATA SUMMARY FORM: VOLATILES 1
SOLID SAMPLE
ug/kg

Site Name: IndustriPlex

Sampling Date: June 18, 2004

SDG #100862

Trillium Project No. 04864

RL		Sample Number															
		Lab ID	576337														
		Dilution Factor	1.39														
		Percent Moisture	53														
5.0	Dichlorodifluoromethane																
5.0	Chloromethane																
5.0	Vinyl chloride																
5.0	Bromomethane																
5.0	Chloroethane																
5.0	Trichlorofluoromethane																
5.0	Acrolein																
5.0	Freon TF																
5.0	1,1-Dichloroethene	260															
5.0	Acetone		UJ														
5.0	Methyl iodide																
5.0	Carbon disulfide																
5.0	Allyl chloride																
5.0	Methylene chloride																
5.0	Acrylonitrile	46															
5.0	trans-1,2-Dichloroethene																
5.0	total 1,2-Dichloroethene																
5.0	Methyl-t-butyl ether																
5.0	1,1-Dichloroethane																
5.0	Vinyl acetate																
5.0	Chloroprene																
5.0	cis-1,2-Dichloroethene																
5.0	2-Butanone*	14	J														
20	Proprionitrile																
5.0	Methacrylonitrile																
5.0	Bromochloromethane																
50	Tetrahydrofuran																
5.0	Chloroform																
5.0	1,1,1-Trichloroethane																
5.0	Carbon tetrachloride																
250	Isobutyl alcohol																

* 2-butanone is areferred to as methyl ethyl ketone in the soil gas data packages

\Industriplex\soil gas\100862 clay

SOLID SAMPLE
ug/kg

Site Name: IndustriPlex

Sampling Date: June 18, 2004

SDG #100862

Trillium Project No. 04864

RL									
	Sample Number	Modeling Clay							
	Lab ID	576337							
	Dilution Factor	1.39							
	Percent Moisture	53							
5.0	Benzene								
5.0	1,2-Dichloroethane								
5.0	Trichloroethene								
5.0	1,2-Dichloropropane								
5.0	Methyl methacrylate								
5.0	Dibromomethane								
250	1,4-Dioxane								
5.0	Bromodichloromethane								
5.0	2-Chloroethyl vinyl ether								
5.0	cis-1,3-Dichloropropene								
5.0	Ethyl methacrylate								
5.0	1,1,2-Trichloroethane								
5.0	Tetrachloroethene								
5.0	2-Hexanone								
5.0	Dibromochloromethane								
5.0	1,2-Dibromoethane								
5.0	Chlorobenzene								
5.0	1,1,1,2-Tetrachloroethane								
5.0	Ethylbenzene								
5.0	m,p-Xylenes								
5.0	total Xylenes								
5.0	o-Xylene								
5.0	Styrene								
5.0	Bromoform								
5.0	Isopropylbenzene								
5.0	cis-1,2-Dichloro-2-butene								
5.0	1,1,2,2-Tetrachloroethane								
5.0	1,2,3-Trichloropropane								
5.0	trans-1,4-Dichloro-2-butene								
5.0	1,3-Dichlorobenzene								
5.0	1,4-Dichlorobenzene								

\Industriplex\soil gas\100862 clay

EPA 8260B

DATA SUMMARY FORM: VOLATILES 3
SOLID SAMPLE
ug/kg

Site Name: IndustriPlex

Sampling Date: June 18, 2004

SDG #100862

Trillium Project No. 04864

RL		Sample Number															
		Lab ID	Modeling Clay														
		Dilution Factor	576337														
		Percent Moisture	1.39														
			53														
5	1,2-Dichlorobenzene																
5.0	1,2-Dibromo-3-chloropropane																
5.0	1,2,4-Trichlorobenzene																
5.0	Hexachlorobutadiene																
5.0	Naphthalene	15	U														
5.0	2,2-Dichloropropane																
5.0	1,1-Dichloropropene																
5.0	1,3-Dichloropropane																
5.0	Bromobenzene																
5.0	n-Propylbenzene																
5.0	2-Chlorotoluene																
5.0	4-Chlorotoluene																
5.0	1,3,5-Trimethylbenzene																
5.0	tert-Butylbenzene																
5.0	1,2,4-Trimethylbenzene																
5.0	sec-Butylbenzene																
5.0	4-Isopropyltoluene																
5.0	n-Butylbenzene																
5.0	1,2,3-Trichlorobenzene																

\Industriplex\soil gas\100862 clay

TRILLIUM INC.

ATTACHMENT B

LABORATORY FORM I

SDG#100862
Volatiles in a Solid Sample - IndustriPlex
Sample Collected June 18, 2004

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

ROUX2 SAMPLE NO.

MODEL CLAY
Modeling Clay

Lab Name: STL BURLINGTON Contract: 24000

Lab Code: STLVT Case No.: 24000 SAS No.: SDG No.: 100862

Matrix: (soil/water) SOIL Lab Sample ID: 576337

Sample wt/vol: 3.6 (g/mL) G Lab File ID: 576337

Level: (low/med) LOW Date Received: 06/19/04

% Moisture: not dec. 53 Date Analyzed: 06/22/04

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	15	U
74-87-3	Chloromethane	15	U
75-01-4	Vinyl Chloride	15	U
74-83-9	Bromomethane	15	U
75-00-3	Chloroethane	15	U
75-69-4	Trichlorofluoromethane	15	U
107-02-8	Acrolein	15	U
76-13-1	Freon TF	15	U
75-35-4	1,1-Dichloroethene	260	
67-64-1	Acetone	15	~~U~~ UJ
74-88-4	Methyl Iodide	15	U
75-15-0	Carbon Disulfide	15	U
107-05-1	Allyl Chloride	15	U
75-09-2	Methylene Chloride	15	U
107-13-1	Acrylonitrile	46	
156-60-5	trans-1,2-Dichloroethene	15	U
540-59-0	1,2-Dichloroethene (total)	15	U
1634-04-4	Methyl-t-Butyl Ether	15	U
75-34-3	1,1-Dichloroethane	15	U
108-05-4	Vinyl Acetate	15	U
126-99-8	Chloroprene	15	U
156-59-2	cis-1,2-Dichloroethene	15	U
78-93-3	2-Butanone	14	J
107-12-0	Propionitrile	58	U
126-98-7	Methacrylonitrile	15	U
74-97-5	Bromochloromethane	15	U
109-99-9	Tetrahydrofuran	150	U
67-66-3	Chloroform	15	U
71-55-6	1,1,1-Trichloroethane	15	U
56-23-5	Carbon Tetrachloride	15	U
78-83-1	Isobutyl Alcohol	730	U
71-43-2	Benzene	15	U
107-06-2	1,2-Dichloroethane	15	U

CAErikson 7/13/04

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

ROUX2 SAMPLE NO.

MODEL CLAY
Modeling Clay

Lab Name: STL BURLINGTON Contract: 24000

Lab Code: STLVT Case No.: 24000 SAS No.: SDG No.: 100862

Matrix: (soil/water) SOIL Lab Sample ID: 576337

Sample wt/vol: 3.6 (g/mL) G Lab File ID: 576337

Level: (low/med) LOW Date Received: 06/19/04

% Moisture: not dec. 53 Date Analyzed: 06/22/04

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
79-01-6	Trichloroethene	15	U
78-87-5	1,2-Dichloropropane	15	U
80-62-6	Methyl Methacrylate	15	U
74-95-3	Dibromomethane	15	U
123-91-1	1,4-Dioxane	730	U
75-27-4	Bromodichloromethane	15	U
110-75-8	2-Chloroethyl Vinyl Ether	15	U
10061-01-5	cis-1,3-Dichloropropene	15	U
108-10-1	4-Methyl-2-pentanone	15	U
108-88-3	Toluene	15	U
10061-02-6	trans-1,3-Dichloropropene	15	U
97-63-2	Ethyl Methacrylate	15	U
79-00-5	1,1,2-Trichloroethane	15	U
127-18-4	Tetrachloroethene	15	U
591-78-6	2-Hexanone	15	U
124-48-1	Dibromochloromethane	15	U
106-93-4	1,2-Dibromoethane	15	U
108-90-7	Chlorobenzene	15	U
630-20-6	1,1,1,2-Tetrachloroethane	15	U
100-41-4	Ethylbenzene	15	U
1330-20-7	Xylene (m,p)	15	U
1330-20-7	Xylene (total)	15	U
95-47-6	Xylene (o)	15	U
100-42-5	Styrene	15	U
75-25-2	Bromoform	15	U
98-82-8	Isopropylbenzene	15	U
1476-11-5	cis-1,4-Dichloro-2-butene	15	U
79-34-5	1,1,2,2-Tetrachloroethane	15	U
96-18-4	1,2,3-Trichloropropane	15	U
110-57-6	trans-1,4-Dichloro-2-butene	15	U
541-73-1	1,3-Dichlorobenzene	15	U
106-46-7	1,4-Dichlorobenzene	15	U
95-50-1	1,2-Dichlorobenzene	15	U

CLICK TO RETURN TO APPENDIX 2

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

ROUX2 SAMPLE NO.

MODEL CLAY

Lab Name: STL BURLINGTON Contract: 24000

Lab Code: STLVT Case No.: 24000 SAS No.: SDG No.: 100862

Matrix: (soil/water) SOIL Lab Sample ID: 576337

Sample wt/vol: 3.6 (g/mL) G Lab File ID: 576337

Level: (low/med) LOW Date Received: 06/19/04

% Moisture: not dec. 53 Date Analyzed: 06/22/04

GC Column: CAP ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume:_____(uL) Soil Aliquot Volume: _____(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
96-12-8	1,2-Dibromo-3-Chloropropane	15	U
120-82-1	1,2,4-Trichlorobenzene	15	U
87-68-3	Hexachlorobutadiene	15	U
91-20-3	Naphthalene	15 ~~4.1~~ ~~JB~~ U	
594-20-7	2,2-Dichloropropane	15	U
563-58-6	1,1-Dichloropropene	15	U
142-28-9	1,3-Dichloropropane	CAE 7/13/04 15	U
108-86-1	Bromobenzene	15	U
103-65-1	n-Propylbenzene	15	U
95-49-8	2-Chlorotoluene	15	U
106-43-4	4-Chlorotoluene	15	U
108-67-8	1,3,5-Trimethylbenzene	15	U
98-06-6	tert-Butylbenzene	15	U
95-63-6	1,2,4-Trimethylbenzene	15	U
135-98-8	sec-Butylbenzene	15	U
99-87-6	4-Isopropyltoluene	15	U
104-51-8	n-Butylbenzene	15	U
87-61-6	1,2,3-Trichlorobenzene	15	U